

## AT\_Rainbach im Mühlkreis\_Schule

**Image 01:**  
Rendering ©ARCHEVOLUTION



**Image 02:**  
Exterior view front ©Rehberger



**Image 03:**  
Interior view of first floor ©Rehberger



### Building Specifications

Address	Schulstraße 16, 4261 Rainbach i.M., Austria
Building Category	Educational
Year of Construction	2014
Special Qualities	Plus-Energy-School
Location	48° northern latitude, 14° eastern longitude, 719 m above sea level
Climate	CfB – moderate climate, due to higher seal level (720m) cool nights

### Vent. Cooling Site Design Elements (Solar Site Design and Wind Exposure Design, Evaporative Effects from Plants or Water)

n/a

### Vent. Cooling Architectural Design Elements (Form, Morphology, Envelope, Construction&Material)

Envelope: With a wooden curtain-wall façade the thermal insulation reduces heat losses in winter and solar gains in summer. The outer shading is controlled in combination with the artificial lighting indoors.  
Construction & Material: Due to the existing building stock there is still a lot of thermal mass two thirds of the ceilings in the classrooms are covered with massive wood to improve acoustics the other third of the ceiling has exposed thermal mass.

### Vent. Cooling Technical Components (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)

The Ventilative Cooling is done by mechanical ventilation.

### Actuators, Sensors and Control Strategies

To reduce solar gains and gains from artificial light: the outer shading is centrally controlled by sunlight and is combined with the control of the inner artificial light. In each room, the outer shading can still be manually adjusted.  
The mechanical night ventilation is controlled by the building automation in combination with manual interventions by the caretaker. During night a higher air exchange rate of 2,5/h is applied.

## IEA EBC Annex 62 Ventilative Cooling

<b>Building Energy Systems</b> (Heating, Ventilation, Cooling, Electricity)
Heating: woodchip boiler for heating and partly domestic hot water. During summer time also thermal solar panels (20m <sup>2</sup> ) produce hot water. Ventilation/Cooling: centralised ventilation system with 83% heat recovery and humidity recovery. No additional cooling system Electricity: 42kWp Photovoltaics, highly efficient lighting combined with day light sensors, comprehensive energy monitoring
<b>Building Ownership and Building Facility Management Structures</b>
Building Owner: Association to support the infrastructure of the municipality of Rainbach im Mühlkreis Facility Management: A caretaker is in charge of the operation of the building Design team: Architecture: ArchEvolution DI Ingrid Domenig-Meisinger (Arch+More) + Arch DI Albert Böhm, Building Technology: Jürgen Obermayer
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